UNITED STATES PATENT AND TRADEMARK OFFICE

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HEWLETT PACKARD COMPANY
INTELLELLECTUAL PROPERTY ADMINITRATION
3404 E HARMONY ROAD
P O BOX 272400
FORT COLLINS, CO   80528-9599

EXAMINER
WOO, ISAAC M

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/368,635
Filing Date: August 04, 1999
Appellant(s): ARLITT ET AL.

Patrick C. Keane
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 28, 2004.

(1)   ***Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

(2)   ***Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly

affect or be directly affected by or have a bearing on the decision in the pending appeal

is contained in the brief.

The statement of the status of the claims contained in the brief is correct.

(3)   ***Status of Claims***

The statement of the status of the claims contained in the brief is correct.

(4)   ***Status of Amendments After Final***

No amendment after final has been filed.

(5)   ***Summary of Invention***

The summary of invention contained in the brief is correct.

(6)   ***Grounds of rejection to be reviewed on appeal***

The appellant's statement of the issues in the brief is correct.

1.   The rejection of claims 1-3, and 5-7 under 35 U.S.C. § 103, as being

unpatentable over the Holt, III patent (US 6,324,565, hereinafter, "Holt") in view of the

Smith et al. patent (US 6,377,991, hereinafter, "Smith"); and

2.   The rejection of claim 4 under 35 U.S.C. § 103, as being unpatentable

over the Holt, III patent in view of the Smith et al. patent in further view of the Aggarwal

et al. patent (US 6,012,126, hereinafter "Aggarwal").

(8)   Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9)   Prior Art of Record

6,324,565	HOLT, III	11-2001
6,377,991	SMITH et al	04-2002
6,012,126	AGGARWAL et al	01-2000

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, and 5-7 are rejected under 35 U.S.C. § 103, Holt, III (U.S. Patent No.

6,324,565) in view of Smith et al (U.S. Patent No. 6,377,991). Claim 4 is rejected under

35 U.S.C. § 103, Holt, III (U.S. Patent No. 6,324,565) in view of Smith et al (U.S. Patent

No. 6,377,991) in further view of Aggarwal et al (U.S. Patent No. 6,012,126). This

rejection is set forth in a prior Office Action, mailed on March 24, 2004.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Holt, III et al (U.S. Patent No. 6,324,565, hereinafter, "Holt") in view of Smith et al

(U.S. Patent No. 6,377,991, hereinafter, "Smith").

With respect to claims 1 and 2, Holt discloses that in a data access network

system that includes content server (14, content providing server, fig.1) coupled to a

plurality of proxy servers (12, intermediate servers (col. 7, lines 36-60), fig. 1, col. 3,

lines 38-67 to col. 4, lines 1-45) via an interconnect network (fig.1, col. 3, lines 22-39), a

system of maintaining content consistency between the content server (14, content

providing server, fig.1) and proxy server (12, intermediate servers (col. 7, lines 36-60),

col. 3, lines 38-67 to col. 4, lines 1-45), consistency manager also in the content server

(14, content providing server, fig. 1) in the content server for notifying all of so

subscribed proxy servers (12, intermediate servers, col. 7, lines 36-60, fig. 1, col. 3,

lines 38-67 to col. 4, lines 1-45) that cache the content file when the content file is

updated in the content server to discard the cached content file from those proxy

servers, see (col. 6 lines 11-14, the content server 14 notifies updates to all

intermediate servers which cached the content. Holt teaches to update the content file

at the intermediate servers (col. 6 line 18-19). Updating the file implies that the old file

is discarded. Holt does not explicitly disclose a list specifying all of the proxy servers

that subscribed to a content file. Holt teaches notifying all intermediate servers that

cached the data of update (col. 6 lines 11-15). Hence, Holt must have some

mechanism for knowing which intermediate servers cached the data. Having a list of

subscriber is well known in the art. In similar field of invention, Smith discloses a

system having a server 86 and a proxy server array 82 (fig. 2 and fig. 5). The server 86

has a list that contains all the proxy servers in the array 82 so as to enable the server 86

to know the membership in the array, see (fig. 5 col.10 lines 15-23, 56-65, and fig.9A-D,

col.6 lines 49-65). Given the teaching of Smith, one of ordinary skill in the art would

have been motivated to have a list of all proxy servers that subscribed to the content

because it would have enabled quick access to membership information and enable the

content server to notify appropriate proxy servers of content updates.

With respect to claim 3, Holt discloses the proxy server notifies subscription

manager that it has cached the content filed via an HTTP GET request when the proxy

server decides that the content file should be cached (col.3 lines 62-67 to col.4 lines 1-

23, col.7 lines 35-45). Since the intermediate server and Content server are Internet

servers, it is inherent that HTTP GET is used when the intermediate server send a

request for document to the content server 14. Holt does not specifically teach

providing SUB header in the request.   However, Holt teaches the content server 14 can

distinguish request made from an intermediate server verse request made from a client

(see col.6 lines 56-61). If the request is from an intermediate server, the content server

keeps a record of it so it can notify the intermediate server of changes (see col.7 lines

35-45). Hence, Inherently there is some type of indicator in the request indicating that

the request is from an intermediate server. Since the content server records the fact

that the intermediate server is caching a particular document in response the request

from the intermediate server, the request is effectively a subscription notification to the

content server as claimed. Therefore, Holt has a SUB header as claimed.

With respect to claim 5, Holt discloses the content server notifying all subscribed

proxy servers when a content file has changed (col.6 lines 11-14). The notification

inherently has some indicator that this is a update notice in order for the intermediate

servers to know what is being communicated from the content server. The notification

constitutes a DWS INV message as claimed.

With respect to claim 6, Holt discloses the content server sending updated

content file to each proxy servers (col.6 lines 17-20).   Since the intermediate server and

Content server 14 are Internet servers, it is inherent that HTTP PUT request is used

when the content server 14 pushes updated content files to the intermediate servers.

Holt does not specifically disclose DWS Sub header in the request. However, It is

inherent and obvious to have indicator indicating that updated content is being send so

as to enable the intermediate server to take appropriate action to update the cached

content. The indicator constitutes the DWS Sub header as claimed.

With respect to claim 7, Holt discloses notifying all of subscribed proxy servers to

discard the cached content [col.6 lines 10-20]. Since the content server sends out

update notice after a data change occurred, it is inherent that the update notice is send

from the content server within a time interval after the change. Furthermore, It would

have been obvious for one of ordinary skill in the art to send out the notice within a

predetermined time interval so as to permit timely update of the content at the

intermediate cache servers.

3.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holt, III et

al (U.S. Patent No. 6,324,565, hereinafter, "Holt") in view of Smith et al (U.S. Patent No.

6,377,991, hereinafter, "Smith") further in view of Aggarwal et al (U.S. Patent No.

6,012,126, hereinafter, "Aggarwal").

With respect to claim 4, Neither Holt nor Smith explicitly disclose, the content file

is not a popular file, then that proxy server does not notify the subscription manager that

it has cached the content file, see (col. 1, lines 46-67 to col. 2, lines 1-12, col. 3, lines

38-67 to col. 4, lines 1-45). However, Aggarwal discloses the admission control logic

uses popularity criterion for the object accessed. The auxiliary stack serves as dynamic

popularity list and an object may admitted to the cache if and only if it appears on the

popularity list, see (col. 3, lines 63-67 to col. 4, lines 1-13). And Aggarwal discloses the

object of the admission control logic is to limit entry to the cache to objects which meet a

popularity criterion, see (fig.2, fig.4, col. 6, lines 19-42). This teaches the file that is not

popular is not cached (subscribed). Therefore, it would have been obvious to a person

having ordinary skill in the art at the time of the invention was made to not to include the

content file that is not a popular file. Hence, it would have been obvious to have the

proxy server not notify the subscription manager that it has the unpopular file because it

would have reduced traffic. Caching only popular files provides saving accessing time

for contents with reducing fetch time and saving storage medium in computer

environment.

(11)   Response to Argument

For claim 1 applicant argued that the references do not teach:

    1) *a subscription manager in the content server* for specifying all of the proxy

servers that are subscribed to a content file,

    2) a consistency manager *in the content server* for notifying so subscribed proxy

servers of file update.

    The argument is not persuasive.

Regarding point 1), Holt teaches the cache software 24 at the content server 14 keeps track of the intermediate server that has request a particular content file (see col.6 lines 59-61, col.7 lines 37-45). Hence, the cache software 24 on the content server 14 constitutes a subscription manager as claimed.

Regarding point 2), Holt teaches the content server notifying all intermediate servers that cached a file that has been updated (see col.6 lines 11-14, col.7 lines 40-45). The program means on the content server for performing the notification function constitutes the consistency manager as claimed.

Holt does not specifically use the term 'subscribed' proxy server. However, the content server 14 registers the intermediate server and the content requested (see col.7 lines 35-45). Hence, a request from an intermediate server for a document on content server 14 effectively subscribed the intermediate server to that document.

For claim 2, Holt does not specifically disclose a subscription list. However as stated above, a request for content from an intermediate server effectively constitutes a subscription notice to the content server (see Holt col.7 lines 35-45). The usage of list of subscribers is well known and is taught by Smith and the rejection provided appropriate rationale for combining Smith with Holt.

Holt clearly discloses cache software 24 registering the intermediate server after content is transmitted (see col.7 line 35-40). Hence, the 'subscription manger' on the content server (cache software 24) is notified of proxy servers that has cached the content file as claimed.

For claim 3, Holt does not specifically disclose HTTP GET request with SUB

header. The SUB header according to the specification is merely a label for an indicator

in the HTTP GET request indicating a subscription request from a proxy server. As

point out earlier (Holt col.7 lines 35-45), that a request from an intermediate server for

document on content server 14 effectively constitutes a subscription request. Since the

content server and intermediate servers are Web servers, it is inherent that they uses

HTTP protocol. Hence, it is inherent that the intermediate server sends an HTTP GET

request to the content server to request for content. The content server is able to

distinguish a request from an intermediate server from that of a normal client. Hence,

the request from the intermediate server inherently contains some type of indicator to

indicate that this fact. Hence, this indicator constitutes the SUB header as claimed.

For claim 4, Holt does not disclose not notifying the subscriber manager when

the proxy server decides that the content file is not popular file. Smith teaches the

desire not to cache file that is not popular. Hence, it would have been obvious for one of

ordinary skill in the art to discard unpopular file from the cache of Holt. Since unpopular

would be discarded, the intermediate cache server would no longer be a subscriber to

that file. An unpopular file implies the file is not being request by any client, therefore,

the intermediate cache would not have send a request to the content server to retrieve

the file or updates to the file.

For claim 5, the claimed DWS INV is merely a label for an update message. Holt clearly teaches sending notification message to subscribed proxy servers (col.6 lines 10-15, col.7 lines 40-45). Hence, Holt has a 'DWS INV' message as claimed.

For claim 6, the claimed DWS SUB is merely a label for an indicator of updated content. Holt clearly teaches sending updated content to the proxy servers (col.6 lines 17-20). Since the content server and intermediate servers are Web servers, it is inherent that they uses HTTP protocol. Hence, it is inherent that the content server sends an HTTP PUT request to send the update content to the intermediate servers. It is apparent and would have been obvious to have some type of indicator to let the intermediate servers known the nature of the data being send from the content server. This indicator constitutes a DWS SUB as claimed.

For claim 7, Holt clearly teaches sending notification of updates to subscribed proxy server (col.7 lines 40-45). It is apparent that this notice is sent out within a predetermined time interval. Furthermore, one of ordinary skill in the art would have been motivated to send update notice within a predetermined period interval so as to provide timely notice to the subscribed proxy servers.
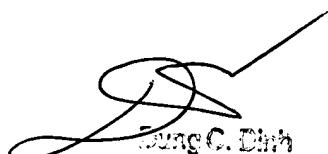
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,
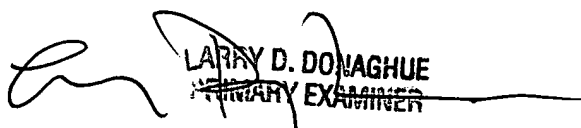
Isaac Woo
February 1, 2006

~~Dung C. Dinh~~
~~Primary Examiner~~

Conferees
Dung Dinh, AU 2152
Larry Donaghue, AU 2154

LARRY D. DONAGHUE
PRIMARY EXAMINER

HEWLETT PACKARD COMPANY
INTELLELLECTUAL PROPERTY ADMINITRATION
3404 E HARMONY ROAD
P O BOX 272400
FORT COLLINS, CO 80528-9599